

CLAIMS

1. Screw closing cap (1), designed to cooperate with a neck (5) of a receptacle, typically a bottle designed to contain an alcoholic drink such as wine, the said neck (5) forming a mouth lip (50) on the upper part and comprising an outer thread (52) on its sidewall and a recessed part (53) on which the said cap (1) will be crimped, the said cap (1) comprising a) an outer shell (2) typically including an outer head and an outer skirt, b) an insert (3), typically made of plastic, the said insert (3) contained in the said shell (2) and fixed to the said shell (2) comprising an inner head (30) and an inner skirt (31) provided with an inner thread (33) designed to cooperate with the outer thread (52) of the said neck (5), and c) a seal (4) typically forming an add-on part fixed to the said insert, the said seal (4) comprising a central part (40) part and a peripheral part or edge (41), characterised in that the said insert (3) comprises a means (6) of radially compressing the said seal (4) in contact with the said neck (5), such that when the said closing cap (1) is screwed to the said neck (5), the said edge (41) is compressed radially between the said insert (3) and the said neck (5), and thus the seal and the opening torque of the said cap (1) are to a large extent independent of the axial position of the said cap (1) with respect to the said neck (5).

2. Cap according to claim 1 in which the said radial compression means (6) is formed as follows:

a) the said inner skirt (31) comprises a circular tab (32) with an axial spacing equal to h_1 from the said inner head (30) forming the bottom of the said insert, the said distance h_1 typically varying from

0.5 mm to 5 mm, so as to form an annular groove (35) with an axial height equal to at least the thickness of the said seal (4), the said annular groove (35) being limited at its top part by the said tab (32) and at its lower part typically by the said thread (33),
5 the said tab (32) having a radial width typically varying from 0.2 mm to 2 mm,

b) the diameter of the said seal (4) may be chosen such that the said edge (41) is capable of cooperating with the said annular groove (35), the said seal (4) having an annular overlap area with the said tab and typically with the said thread called the upper area and the lower area respectively, so that the said seal (4) remains fixed to the said insert (3) before the
10 said cap (1) is screwed onto the said neck (5), or after the said cap (1) is unscrewed from the said neck (5),

c) when the said cap (1) is screwed onto the said neck (5), the said tab (32) or a flexible radial end (320) of the said tab (32) and the said border (41) of the said seal (4) cooperate, the said tab (32) or the said flexible radial end (320) applying the said radial compression (6) on the said border (41), so as to apply the said border in contact with the said neck (5) and typically an upper part (51) of the said neck, forming
20 an overlap area (60) inclined at more than 45° from the vertical (41) between the said tab or the said radial end (320), thus sealing the said cap (1) screwed to the said neck (5).

30 3. Cap according to claim 2 in which the said insert (3) comprises a plurality of notches or retaining pins (34), typically 3 notches arranged at 120° from each other, so as to provide the said lower

annular overlap area instead of or in addition to the said thread (33), so as to fix the said seal (4) to the said insert (3).

4. Cap according to either claim 1 or 2, in which
5 the thickness of the said inner skirt (31) of the said insert (3) at the bottom of the thread (33) varies from 0.1 mm to 1 mm, and typically from 0.15 mm to 0.5 mm.

5. Cap according to any one of claims 1 to 4 in which the said insert (3) is a threaded and typically
10 moulded insert made of a thermoplastic material, typically chosen from among PS, PET, PA, and polyolefins such as PE or PP.

6. Cap according to any one of claims 1 to 5 in which the said shell (2) is an aluminium or tin metal
15 shell, or may be made of a crimpable multilayer metalloplastic material.

7. Cap according to any one of claims 1 to 6 in which the said seal (4) is made of a multilayer material, typically including a compressible central
20 core C made of a thermoplastic material with a density varying from 200 to 500 kg/m³, a lower layer I typically made of polyolefin or possibly an oxygen barrier material designed to come into contact with the said alcoholic drink.

25 8. Cap according to any one of claims 1 to 7 in which the said insert (3) has a height H_i less than the height H_c of the said shell (2).

9. Cap according to claim 8 in which the height H_c of the said shell (2) is at least twice as high as the
30 height H_i of the said insert (3) so as to form a cap with a long skirt.

10. Cap according to claim 9 in which the said shell (2) comprises a means of detecting or

facilitating a first opening, typically a line of weakness (22) or a first opening strip formed on the said outer skirt, the said means being located at a height between H_c and H_i , such that the said means is located above the said recessed part (53) of the said neck (5) when the said cap (1) is screwed onto the said neck (5), the said cap (1) being crimped to the said neck (5) by local deformation of the said outer skirt (21) of the said shell (2) in the said recessed part (53), such that the said cap (1) cannot be unscrewed without breaking the line of weakness or removing the said strip.

11. Cap according to any one of claims 1 to 7 in which the height H_i of said insert (3) is equal to at least the height H_c of the said shell (2).

12. Cap according to claim 11 in which the said insert (3) includes a means of detecting or facilitating a first opening, the said inner skirt of the said insert including an attachment means in its lower part designed to cooperate with the said recessed part when the said cap is screwed and crimped to the said neck.

13. Cap according to any one of claims 1 to 12 in which the said shell (2) has a radius of curvature R_C of the said shell at the junction between the said outer head and the said outer skirt varying from 0.5 mm to 5 mm, and typically equal to 1.5 mm or 2.5 mm.

14. Cap according to claim 13 in which the said shell (2) has a radius of curvature R_C equal to at least 2 mm, and the said insert (3) may have a radius of curvature R_{Ci} typically equal to R_C , such that the entire part of the said shell compresses the said insert or is in contact with the said insert, and the

said insert thus has an improved resistance at high temperature.

15. Cap according to any one of claims 1 to 14 in which the said insert and the said shell are fixed by
5 force fitting and / or by an adhesive layer fixing the said outer skirt (21) and inner skirt (31) together.

16. Cap according to any one of claims 1 to 15 in which a complementary element is fixed to the said insert (3) or to the said seal (4), the said
10 complementary element being designed to remain fixed to the said neck (5) after the said cap (1) has been unscrewed, the said element typically forming a pouring spout (7).